

Abstract:

Existing plate-type heat exchangers typically include plates that are constructed of metal or paper, which are only capable of transferring a limited amount of moisture, if any, from one side of the plate to the other side. The present invention is a plate-type heat exchanger wherein the plates are constructed of ionomer membranes, such as sulfonated or carboxylated polymer membranes, which are capable of transferring a significant amount of moisture from one side of the membrane to the other side. Incorporating such ionomer membranes into a plate-type heat exchanger provides the heat exchanger with the ability to transfer a large percentage of the available latent heat in one air stream to the other air streams. The ionomer membrane plates are, therefore, more efficient at transferring latent heat than plates constructed of metal or paper.